Developing and Supporting High-Performing Faculty Teams in Engineering Institutions

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Abstract

There is a fast growth in engineering education in the last thirty years in India. Thousands of colleges have sprung up both in the private sector and in the government but there is a severe shortage of qualified high-performing faculty members. Most of the institutes are not accredited. The scenario of educational corruption has increased and the high-performing faculty members have been left out or discarded. Even though there are rules and regulations, the growth of corruption was not controlled. Hence, it is essential to develop a system to assess integrity in these institutions which will facilitate the growth of high-performing faculty teams. Integrity is more acceptable and enables faster growth of knowledge capital. Ethics are to be instilled in all development activities. The employment of high-performing faculty members should be based on quality, accomplishments, achievement, and intrinsic motivation. The engineering institutes are to be governed based on integrity. All these will develop high-performing faculty teams who can substantially contribute to the knowledge and human capital. This twenty-point model will have to be implemented in all institutions. Integrity checks have to be performed periodically and high-performing faculty are to be accelerated so that the growth of human capital is ensured.

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1. Introduction

Most developing countries have faced the problem of continuous demand for graduates in various fields due to the globalization of the economy. This gave rise to quick approval for establishing more educational institutions but the

availability of outstanding faculty members has become limited. Considering the shortages of qualified and well-accomplished faculty members, many entrepreneurs have utilized the opportunity to recruit unqualified faculty members with the hope that they will acquire the higher qualification within five years. Corruption has become deep-rooted and has grown to every decision-making act like selecting faculty for training and development, sanctioning leave for higher education, approving faculty members to participate in international conferences, etc. Many Boards of Governors of autonomous institutions have ignored the standards, norms, ethics, and innovation. Over some time, the return on investments was reduced. The problem of corruption has to be solved as a priority item.

2. Objectives

- Survey the deviations in recruitments, grant eligible leave for training and development, and offer high academic cadres, and dean posts.
- Assess the root causes for deviations.
- Develop an integrity model to eliminate corruption in engineering institutions.
- Suggest a suitable implementation process of the integrity model in engineering institutions.

2.1. Research Methodology

Qualitative research and survey methodology have been adopted. The population consists of highly qualified faculty members of national institutions, autonomous colleges, deemed universities, and state technical universities. 128 senior faculty members have been selected who have around 15 years of teaching experience and have undergone a minimum of three faculty development programs in higher education development, institutional development and creation of centers of excellence, planning diverse global faculty development, and planning complex projects under IDAs.

3. Literature Survey

Affirmative Action, Diversity, and Inclusion:

USA's President Kennedy incorporated the concept of "affirmative action" into Executive Order 10925, which he issued in 1961. Executive Order 10925 imposed on all covered contractors a general obligation requiring positive steps designed to overcome obstacles to equal opportunity employment opportunity. In 1965, President Lyndon Baines Johnson signed Executive Order 11246, which gave the Secretary of Labor responsible for the administration and enforcement of the Order 11246 mandating that contractors not discriminate against any employees or qualified applicants because of race, color, religion, sex, or national origin (American Association for Access. Equity, and Diversity). Affirmative action has been defined in the USA as "any measure, beyond simple termination of a discriminatory practice, adopted to correct or compensate for past or present discrimination or to prevent discrimination from recurring in the future".

The Dean's responsibilities include leading the processes of college administrator selection and overseeing the processes

of faculty and staff selection and retention (Illinois State University, 2018).

3.1. Expectations of High-Performing Faculty Teams

Most of the high-performing faculty teams have intrinsic motivation, expect more delegation of challenging projects, empowerment, transparency in decision making, forwarding the letters of invitations, no discrimination, sharing of project gains, and zero corruption in the recruitments, forwarding the nomination to international institutions as per the norms, etc. They are ready to succeed in all complex educational projects, and ready to bid for consultancy projects under various International Development Agencies (IDAs). They never expect micromanagement in the programs.

3.2. Codes of Ethics for Educators (The Minnesota Code of Ethics for Teachers)

- A teacher shall provide professional education services in a nondiscriminatory manner
- A teacher shall take reasonable disciplinary action in exercising the authority to provide an atmosphere conducive to learning
- A teacher shall not use professional relationships with students, parents, and colleagues to private advantage
- A teacher shall not knowingly falsify or misrepresent records or facts to that teacher's qualification or other teachers' qualifications
- A teacher shall not knowingly make false or malicious statements about students or colleagues
- A teacher shall accept a contract for a teaching position that requires licensing only if properly or provisionally licensed for that position

3.3. Model Code of Ethics for Educators

(The Minnesota Code of Ethics for Teachers, National Association of State Directors of Teacher Education and Certification)

The code establishes principles for ethical best practice, mindfulness, self-reflection, and decision-making, setting the groundwork for self-regulation, and self-accountability. There are five principles, which broadly define critical dimensions of ethical practice expected of the professional educator each followed by performance indicators that more specifically define aspects within each principle.

1. Responsibility to the profession
2. Responsibility for professional competence
3. Responsibility to Students
4. Responsibility to the School Community
5. Responsible and ethical use of technology

Focused research on corruption and the findings are presented in Table.1.

Table 1. Focused Research and Findings

Author (s)	Focused Research	Finding
Sharon L. Nichols & David C. Berliner (2005) [16]	The inevitable corruption of indicators and Educators through high-state testing	The over-reliance on high-stakes testing has serious negative repercussions that are at present at every level of the public school system in the USA.
Jeff Bryant (2019)	An education reform movement that has exhorted schools to operate more like businesses and mimic corporate hiring processes.	School board members need to become better informed and savvier about profit motives and organizations that seek to influence their selection.
Duncan Waite and David Allen (2003)	Corruption and abuse of power in educational administration	The authors uncovered the range of corruption and abuse of power. Explored the relationship between corruption and hierarchical, pyramidal bureaucracies. Corruption results in gains through the downward flow and siphoning off resources, but, due to the protective nature of such systems and a code of culture of silence that surrounds such practices.
Amra Sabic-El-Rayess & Naheed Mansur (2016) [2]	Favor Reciprocation Theory in Education: New Corruption Typology	Elites gravitate towards and benefit from non-pecuniary corruption while the poor tend to bribe. The study places the onus on the lack of accountability of elite power maneuvers and aims to aid in creating further awareness to combat corruption.
Monica Kirya (2019) [10]	Education Sector Corruption: How to assess it and ways to address it.	Education sector corruption erodes social trust, worsens inequality, and sabotages development. Results in academic cheating, bribery, nepotism, and favoritism in teacher appointments. Use transparency- and accountability-promoting tools to tackle corrupt behaviors and the incentives underlying them.
OECD Anti-Corruption Network for Eastern Europe and Central Asia (2018) [12]	The integrity of Education Systems A Methodology for Sector Assessment. Corruption in Education: Misappropriation of funds for personal advantage, favoritism in employment, etc.	Revise anti-corruption plans to make them more targeted and action-oriented by adding a focus on education; develop sector integrity plans; mainstream anti-corruption priorities;
OECD (2018) [12]	The integrity of Educational Systems A Methodology for Sector Assessment	Describes a set of interconnected protocols for assessing the integrity of national education systems: the guiding questions, underlying theory, and expected results. The protocols aim to identify practices in education that qualify as corrupt and to explore education systems from the point of view of their vulnerability to such practices. The assumption is that liability for problematic conduct can be enforced more effectively if these practices are known and well-described, and also that prevention is most effective when based on improvements in education policy and practice because corruption is a consequence of deeply-rooted, systemic problems in the sector.
Graduate School of the University of Missouri, USA: Office of Post-Doctoral Education	Research Excellence Program (REP): Research Enhancement	The REP program helps support the research mission by Increasing research support, capacity, and productivity from existing high-performing faculty and providing specialized training and support to postdoctoral scholars to advance their careers and preparedness to apply for grants and early career awards. Professional development for REP postdocs includes grant writing, personalized guidance in finding funding, and support in the process of submitting for career awards.
	1. Developing a	In any organization, 10% of the employees are high performers; 80% are average performers and 10% are low

Eitan Sharir (2013)	Culture of Excellence, 2. Changing Expectations key to a high-performance culture	In any organization, 10% of the employees are high performers, 80% are average performers and 10% are low performers. High performers need to be rewarded, mentored, and recognized. 30% of the time is to be spent with high performers, where the return on investment for every percent in improvement is the highest. When you build a corporate culture of excellence, you create organizational capacity and a structure that empowers focuses, and engages employees.
Rajesh P. Khambayat, Nalok Banerjee, & Shubhangi Rajesh Khambayat (2015)	Creating a Culture of Excellence in Technical Education	Institutional culture is the behavioral norms of an organization based on the assumptions, values, beliefs, attitudes, and priorities of its leaders and members. Creating a culture of excellence is purposefully and actively building capacity for new ways of institutional working.
Excellence in Canada	Developing a High-Performing Organization by Cultivating a Culture of Excellence	Build a culture of excellence through organizational excellence standards (OES). Engage and retain the highest-performing employees. Develop strong, diverse teams and motivate employees. Create innovative ideas and solutions

3.3.1. Synthesis of Findings in Integrity

- Overreliance on high-stakes testing has serious negative repercussions
- Board members need to be informed of the selection process
- A code of culture surrounds the corruptive selection process
- Lack of accountability elite power maneuvers
- Corruption erodes social trust, worsens social equality, and sabotages development. Results in academic cheating, bribery, nepotism, and favoritism in teacher appointment
- Use transparency and accountability-promoting tools to tackle corrupt behaviors
- Revise anti-corruption plans to make them more targeted action oriented by focusing on education
- Develop a sector integrity plan
- Develop a set of interconnected protocols for assessing the integrity of national education systems

3.3.2. Synthesis of Creating Culture of Excellence

- Create research excellence plans
- Develop a culture of excellence
- Develop high-performing organization

3.4. Suggestions for the Indian National Education Policy 2020

NEP Draft 2019 states "A further challenge with faculty motivation is that career management is too often NOT based on merit, but rather on seniority, luck, or other arbitrary factors. There is a clear tenure track or career progression system at most institutions that ensure that hiring, retention, salary increase, promotion, and vertical mobility are all based on merit and quality of performance in teaching, research, and service. Incentives for conducting outstanding work are not an

inherent part of the system, severely reducing faculty motivation and commitment to excellence" [para 13.0, page 257]. "Finally, it states that the institutional leadership system is broken. Institutional leaders are not trained and fostered well in advance, or always chosen based on merit; in too many cases, institutional leadership is chosen based on totally corrupt practices. The transition between institutional leaders is too often not smooth, with reports of leadership vacancies for several months or more. An institutional leadership, by definition, must take the lead in creating a merit-based culture of excellence and high performance at each institution, the broken system of leadership can have a severely demotivating effect on both faculty and students"

A snap study has been undertaken to get the corrupt practices that have been deducted by the faculty members. Through a triangulation method, the proven cases have been presented below:

The synopsis of some of the corruption cases in a national institute was not controlled since CEOs themselves initiated them. The auditors have deleted their deductions. The Governing Council didn't investigate the deviant acts.

3.4.1. Synthesis

- Most of the CEOs used their discretion to stop the growth of knowledge capital due to short-sighted vision
- They nurtured their coteries
- They have a negative view of innovation
- The corrupt faculty always got support from the senior faculty who wanted to please the CEO all the time since they didn't take efforts to create new innovative and cutting-edge programs
- The graduate students lost the opportunity to get needed outstanding cognitive skills and sector-specific competencies
- All the corrupt activities are concealed from the Board of Governors
- No National Education Policy supported such criminal acts
- New National Education Policy 2020 focused on a positive academic environment and suggested the development processes and the right method of selection of the faculty members.

Hence, there is an urgent need for an integrity model which will provide a clean academic environment for the growth of knowledge capital and human capital. The NEP (Draft 2019) recommends putting faculty back into the heart of higher education institutions. Further, this NEP (Draft 2019) suggests the following steps:

- Motivate and energize faculty to achieve high quality in higher education
- Ensure service conditions conducive to excellent teaching and research
- Enable vibrant university communities through faculty empowerment
- Incentivize excellence through merit-based career management
- Create a culture of excellence through outstanding institutional leadership

The challenge of mainstreaming anti-corruption in engineering education has to be investigated. This is possible in developing an integrity model. Every discretion has to be evaluated and verified before action steps.

4. Research Study

Twenty questions have been prepared to know the status of the institutions and the quality of decisions made by the leaders and administrators. The feedback from 128 senior faculty members has been presented in Table 2.

Table 2. Feedback to the Questions

No.	Question	Feedback				Weighted Average	
		High (points: 4)	Medium (points:3)	Moderate (points: 2)	Low (points: 1)	Max: 4	%
1	Communicating the circulars from the Ministry/ All India Council for Technical Education (AICTE)	13	27	40	48	1.96	49.02
2	Communicating Letters of Invitation (LOI) for bidding projects under International Development Agencies (IDA)	10	21	37	60	1.85	46.29
3	Inviting applications for dean posts	9	18	34	67	1.76	44.00
4	Error free comparative statement for selection	6	13	27	82	1.59	39.84
5	Sanctioning travel allowances	5	11	22	90	1.46	36.52
6	Forwarding applications for international programs	4	10	19	95	1.40	35.00
7	Granting leave for higher education	5	9	18	96	1.40	35.00
8	Approval for offering guest lectures	7	12	21	88	1.67	41.80
9	Distributing project gains as per the norms and standards	3	7	11	107	1.27	31.64
10	Approval for collaborating with Micro, Small, and Medium Enterprises (MSMEs)	7	11	19	91	1.48	37.10
11	Approval for conducting national conferences	6	11	16	95	1.44	35.93
12	Approving to propose for interdisciplinary master's degree programs	2	5	9	112	1.20	29.88
13	Approval for planning interdisciplinary doctoral programs	2	3	7	116	1.15	28.71
14	Reimbursing the registration fees to present papers at the national and international conferences	2	4	8	114	1.17	29.30
15	Payment of travel costs for participating in the international conferences	2	3	7	116	1.15	28.71
16	Allocating complex projects to high-performing faculty members	3	5	9	111	1.22	30.47
17	Following All India Council for Technical Education (AICTE) guidelines for promoting the faculty members	5	7	11	105	1.31	32.81
18	Established Continuing Education Center	2	2	6	118	1.17	29.30
19	Established Consultancy Center	3	4	8	115	1.21	30.27
20	Organizing continuing education programs for the employees of Micro, Small, and Medium Enterprises (MSMEs)	3	4	10	113	1.27	30.66

4.1. Analysis

Best Three Initiatives:

- Communicating the ministry's circulars to the faculty members: 49.02%
- Communicating Letters of Invitation to the faculty members: 46.29%
- Inviting applications for dean posts: 44.0%

The Least Three Initiatives:

- Approval to implement for the interdisciplinary master's degree programs: 29.88%
- Approval for the interdisciplinary doctoral degree programs: 28.71%
- Payment of travel cost for presenting papers at International Conferences: 28.71%

Interpretation: Most facilitating activities are far below the expectation. The administrators need to be guided in developing high-performing faculty teams.

4.2. Institutional Development Model through Planned Engagement of High-Performing Faculty Teams

This 20-point model is based on the above analysis.

1. Transparency and Communication Adequacy (Letters from the Ministry of Education, AICTE, IDAs, Industries, Universities, Overseas Organizations, etc.)
2. Transparency in Recruitment, Following the Service and Recruitment Rules, and No Discrimination
3. Forwarding Applications and Providing Assistance as per the norms, rules to Paper Presentation and Participation at the National and International Conferences/Seminars/Symposia/Workshops
4. Nominating or Granting Eligible Leaves for Joining International/National Universities as Experts/ Interns/ Delivering Guest Lectures/Keynote Addresses
5. Sharing the project gains as per the norms/standards
6. Approval for undertaking consultancy works under MSMEs/IDAs/Other Government Departments
7. Approval to Plan, Collaborate, and Conduct National and International Conferences/ Seminars/Workshops within India or Overseas Universities
8. Approval for Planning Interdisciplinary Graduate/Postgraduate/Doctorate Programs based on the emerging needs/funds from Sponsoring Councils/Commissions
9. Scaffolding the high-performing teams to invite adjunct professors, and industry experts based on the needs and from the project funds received
10. Granting emeritus appointments based on the Ministry's guidelines
11. Approving the Planning and Establishing Center of Excellence based on funding from the Ministry of Education or Other National Development Agencies
12. Eliminating all kinds of Discriminations/ Corruption in all Academic Activities
13. Establishing Integrity, Equity, and Transparency in all Institutional Development Activities
14. Establishing a Culture of Excellence to Promote Knowledge Capital
15. Conducting Academic Audit Periodically

16. Planned Faculty Engagement to Utilize the Skills of High-Performing Faculty Teams
17. Support Globalization of Engineering Programs and Global Networking of Departments
18. Support Faculty Exchange through International Development Agencies
19. Support the Work-Life Balance of the Faculty Members
20. Continuously Modernize the Laboratories, Workshops, and Software

4.3. Integrity Committee

This model further envisages the prevention of corruption and unlimited discretion of the erring CEOs. Corruption should be eliminated in all institutional development activities and should not be institutionalized. Instead, an integrity committee could be appointed based on the Governing Board's direction. Two senior-most faculty members of the institute, two reputed external faculty members, and one retired judge could be appointed as members of the integrity committee. The retired judge could be the chairman of the Integrity Committee. This committee will scrutinize all the proposals, applications of the faculty members, and comparative statements, check against the rules, and clear all papers as per the rules for the CEO to take action. If the CEO violates, a criminal case has to be filed. The case has to be filed before an Educational Administrative Tribunal (EAT) and resolved as per the rules. Justice has to be rendered to all high-performing faculty teams.

4.4. Guidelines for Radical Innovation

The Integrity committee has to be incorporated into the service and recruitment rules of the institute. The deviant CEOs have to be directed to follow all ethics, service, and recruitment rules without any deviations. Corruption should be eliminated then only the institutes and the outstanding faculty members will be facilitated to contribute to the knowledge capital and human capital. The institutes have to follow the suggestions of the National Education Policy. It is hoped that by following this model radical innovation can be achieved.

5. Conclusion

The high-performing faculty members are to be recruited, intrinsically motivated, empowered, delegated, and scaffolded. The Institutes have to follow ethics, equity, and transparency in recruitment activities.

There is an urgent need to eliminate corruption in higher education. In the absence of ethics, integrity, and proper selection of all faculty members, corruption has grown in many institutions. To eliminate corruption, the proposed integrity model will provide ethical steps in decision-making before corruption is institutionalized. Every autonomous institute has to constitute an integrity committee consisting of five reputed members. Their clearance to implement the decisions will alone prevent corruption.

Suggestion for Further Research: It is recommended to replicate this study in all regions of the country and generated a national model for the integrity and engagement of high-performing faculty teams.

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